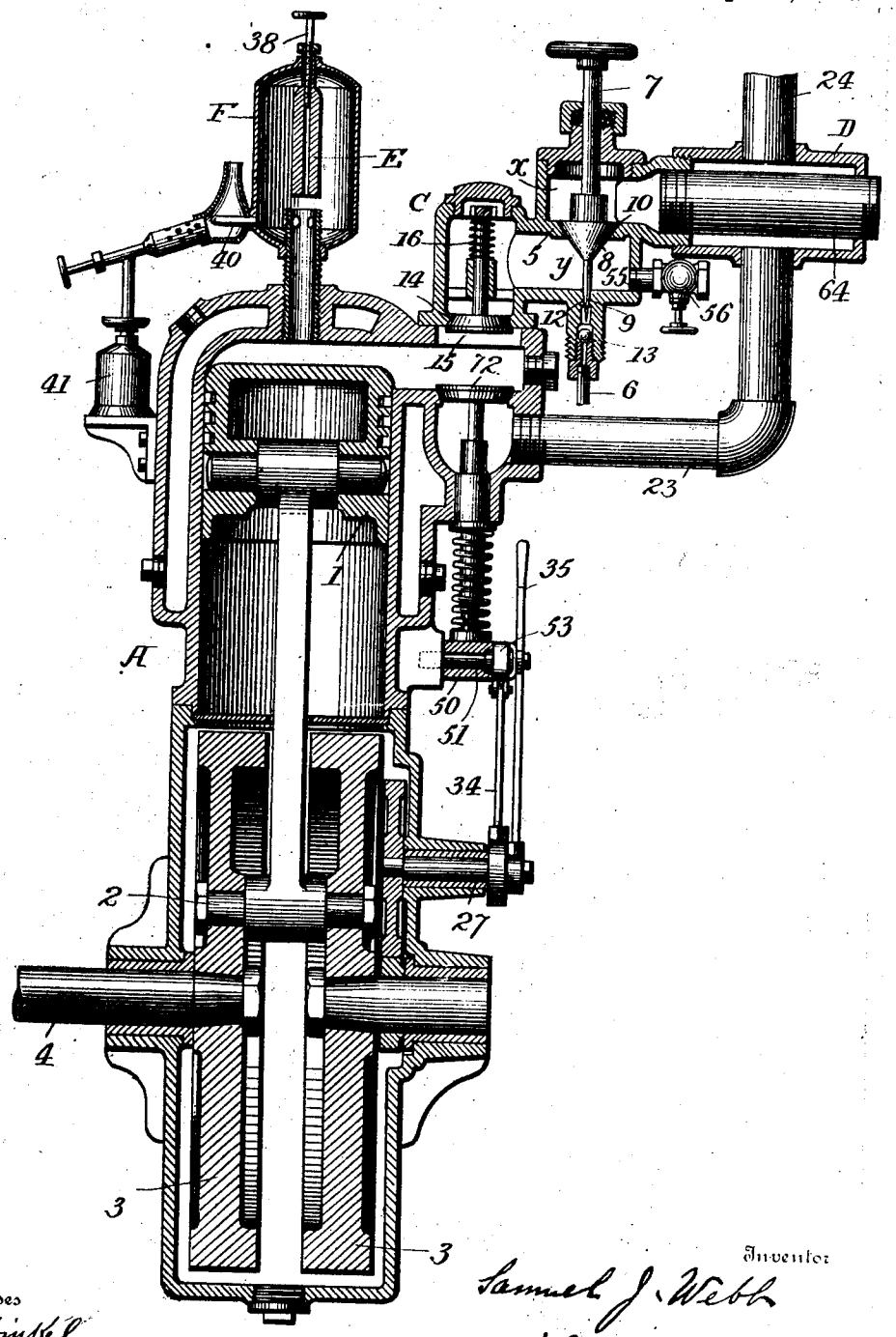
S. J. WEBB.

GAS ENGINE.

APPLICATION FILED OCT. 30, 1902.

1,003,019.

Patented Sept. 12, 1911.



Witnesses

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SAMUEL J. WEBB, OF MINDEN, LOUISIANA.

GAS-ENGINE.

1,003,019. Specification of Letters Patent. **Patented Sept. 12, 1911.**

Application filed October 30, 1902. Serial No. 129,429.

To all whom it may concern:

Be it known that I, SAMUEL J. WEBB, a citizen of the United States, residing at Minden, in the parish of Webster and State of Louisiana, have invented certain new and useful Improvements in Gas-Engines, of which the following is a specification.

My invention relates to gas engines and consists in means for controlling the admission of air and oil or gas for igniting the charge, as fully set forth hereinafter and as illustrated in the accompanying drawing, in which the figure is a transverse sectional elevation of the engine illustrating my improvement.

The cylinder A has a piston 1 connected to the crank pin 2 extending between the fly wheels 3, 3, on the shaft 4 the latter passing through bearings in a casing B. The air inlet pipe 64, communicates with a chamber x in a casing C, which chamber x is separated by a partition 5 from a chamber y with which communicates the oil inlet pipe 6, and a valve stem 7 carries two valves 8, 9, the former closing a port 10 in the partition 5 and the latter a port 12 communicating with the oil pipe, the oil being sprayed by the air current as usual. The valve stem slides longitudinally through a suitable packing box. The two ports 10, 12 are of the proper relative size to permit the flow of the proper relative proportions of oil and air and this is maintained under all variations of flow by making the two valves 8, 9 of the same length, but of such determined different diameters, that when the valves are moving together the two ports will be opened or closed to the same proportionate extent. This avoids the necessity of any adjustable means for regulating the proportions of the gases in the mixture. As it is sometimes desirable to vary the proportion of air to that of oil, I provide an air inlet port 55 to the chamber y controlling it by a valve 56. A check valve 13 prevents back pressure against the oil supply and back pressure against the air valve is prevented by a valve 14 closing upward against a port 15 at the bottom of the casing C, a spring 16 keeping the valve 14 normally closed. The valve 13 has another function, to wit, to prevent the inflow of oil when the valve 14 is closed and when there is no reduced pressure in the valve casing C. If the port 12 was continuously open to the extent permitted by the adjustment of its valve, then upon the closing of the valve 14 or when there was no pressure in the valve casing C, the oil would flow freely upward through the said port and into the casing and accumulate therein to a detrimental extent. The valve 13 tends to remain by its weight in position to close the outlet from the oil inlet tube 6, the oil pressure being very slight in any case, and the oil therefore will not flow into the valve casing except when pressure therein is reduced and it is required to draw both air and oil into the casing.

The exhaust valve 72 is operated from valve shaft 27 operated from the crank shaft by a two to one gearing. The exhaust passes through pipe 23 to a casing D surrounding air pipe 64 and hence to exhaust pipe 24. The combustible charge is ignited by an igniter E in a casing F which communicates with the cylinder.

It will be seen that by shifting the valve stem 7, the two valves may be simultaneously set preserving the relative proportions of gas and air in any position as above described and further that by setting the stem downward to a proper extent each valve may be closed against its seat so that the inlet of both gas and air is absolutely cut off. In such case, the engine will run without any supply whatever. As a result, when the engine is moving forward by momentum, or coasting without any charge, there is no gas within the cylinder to be compressed on the backward movement of the piston, and there is much less resistance to the operation of the engine (even taking into consideration the vacuum resulting from closing the ports) than is the case where air is admitted when there is to be no explosion, which air has to be compressed at each stroke of the engine.

Without limiting myself to the construction shown, I claim:—

1. The combination with a gas engine, of a casing having air and oil inlet parts of determined relative size and a valve stem carrying valves differently formed whereby the relation of size is preserved at all positions of the valves, and an air port 55 and valve 56, substantially as set forth.

2. The combination in a gas engine, of a

casing having air and fuel inlet ports, valves for said ports, said valves being formed and constructed so that the port relations are preserved at all positions of the valves, and a single stem for said valves, said casing being provided with an auxiliary air inlet.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL J. WEBB.

Witnesses:
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